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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,437	03/08/2002	Kohki Mukai	020229	8787

23850 7590 08/28/2003

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EXAMINER

PAK, SUNG H

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 08/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/092,437

Applicant(s)

MUKAI, KOHKI

Examiner

Sung H. Pak

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the c rresp ndence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____ .
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-28 is/are allowed.
- 6) ☒ Claim(s) 29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____ .
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ . 6) ☐ Other: ____ .

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Prucnal (US 5,825,519).

Prucnal reference discloses an optical device with all the limitations set forth in the claims, including: branching a continuous light having a first wavelength into a first continuous light and a second continuous light (Fig. 2); introducing the first continuous light and the second continuous light to a non-linear waveguide (elements 34, 36); changing a refractive index of the non-linear waveguide at first time by introducing, to the non-linear waveguide, a control light pulse having a second wavelength different from the first wavelength (Fig. 2), thereby changing phases of the first continuous light and the second continuous light both passing the non-linear waveguide after the first time (Fig. 3); introducing the first continuous light and the second continuous light,

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which are both outputted from the non-linear waveguide to an interference separator such that the first continuous light is delayed a first delay time from the second continuous light (abstract); and outputting an optical signal having the first wavelength only during a period in which the first continuous light and the second continuous light are out of phase (Fig. 3).

Allowable Subject Matter

Claims 1-28 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: an optical signal processing device utilizing non-linear optical waveguides for introducing phase shifts to selected optical signal channels, and such a device further utilizing interference separator for separating optical signals of selected channels is known in the prior art as taught by Prucnal (US 5,825,519) discussed above.

However, none of the prior art fairly teaches or suggests such an optical device comprising, inter alia, an optical superposing and separating unit including non-linear waveguide arranged in an area where optical paths of first and second optical signal channels superpose each other, as recited in claims 1, 12, 21, 22, and 23.

Further, with respect to claim 28, none of the prior art fairly teaches or suggests such an optical device comprising, inter alia, a non-linear waveguide that imparts timed delay to the second optical signal channel and an interference separator that imparts time delay to the first optical signal, as recited in claim 28.


Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prucnal et al (US 5,493,433), Prucnal et al (US 2002/0126946 A1), Prucnal et al (US 6,535,662 B2), Ueno (US 6,337,762 B1), Mori et al (US 5,604,618), Doran (US 4,881,788) disclose optical devices utilizing non-linear optical waveguides. The disclosures of these references are deemed pertinent to the content of the instant application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (703) 308-4880. The examiner can normally be reached on Monday - Thursday : 6:30am-5:00pm.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Sung H. Pak
Examiner
Art Unit 2874



HEMANG SANGHAVI
PRIMARY EXAMINER

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August 12, 2003